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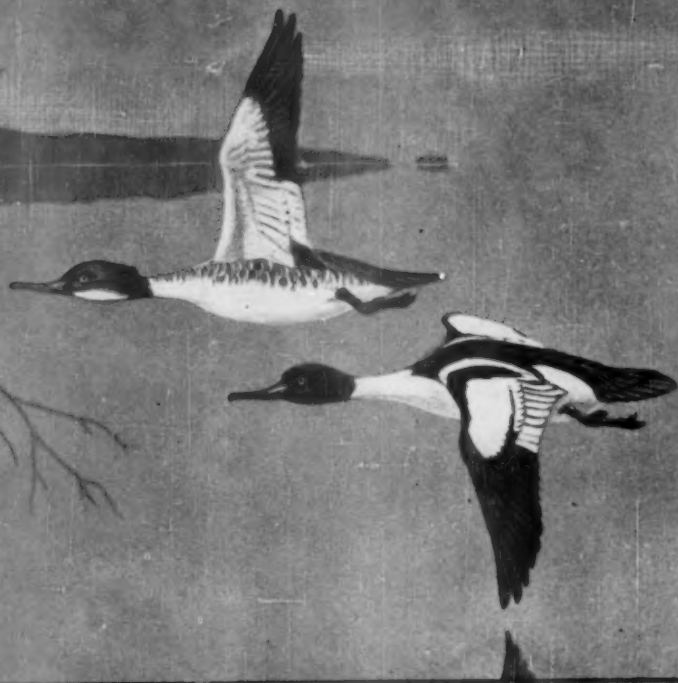
November 24, 1956

VOL. 70, NO. 21

PAGES 321-336

# SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE



Bird Hunting Stamps

See page 329

A SCIENCE SERVICE PUBLICATION

## MEDICINE

# Sports Medicine Advice

► TEN ARTICLES and three editorials on sports medicine appearing in the *Journal of the American Medical Association* (Nov. 17) provide a kind of medical warm-up for the Olympic Games in Australia.

The highlights are:

1. General warming-up, including massage, hot showers and general exercise, aimed at raising body temperature does not improve athletic performance. This was found in a series of experiments on athletes at Springfield, Mass., by Drs. Peter V. Kar-povich and Creighton J. Hale of Springfield College.

2. The chief value of the training table and such foods as rare meat and special desserts is psychological, helping the athlete by providing some sense of security and reassurance. Drs. Theodore B. Van Itallie, Leonardo Sinistrera and Fredrick J. Stare of Harvard School of Public Health department of nutrition, Boston, report. The best diet for an athlete, they state, is one he enjoys and which provides a variety of nourishing foods in amounts adequate to keep his proper weight. The meal immediately before the contest should be one

the athlete picks himself, since he knows which foods he can eat without discomfort while under the emotional stress that may cause loss of appetite and even nausea.

3. Better medical supervision of athletic practice and events would prevent many sports injuries. Dr. Augustus Thorndike, chief surgeon of Harvard University's athletic department, reports. Athletic rules and regulations need changing and existing rules need better enforcement, especially in high school and sand-lot playground activities, he states.

4. Athletes live just as long and die of the same causes as non-athletes, a survey of 1,130 athletic letter winners and 1,130 non-athletes attending Michigan State University and born between 1855 and 1919 showed. The survey findings are reported by Dr. H. J. Montoye, Dr. W. D. Van Huss and Herbert Olson, Andrew Hudec and Earl Mahoney of the university's department of physical education and recreation at East Lansing, Mich.

5. Medical interest in the field of sports and athletics is rising and will become even greater in the future, two editorials in the journal point out.

Science News Letter, November 24, 1956

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## RADIO

Saturday, Dec. 1, 1956, 1:45-2:00 p.m., EST  
"Adventures in Science" with Watson Davis, director of Science Service, over the CBS Radio Network. Check your local CBS station.

Mrs. Elizabeth Wagner, occupational therapy consultant for the National Society for Crippled Children and Adults, New York, will discuss "Toys and Treatments."

With this program "Adventures in Science" resumes its regular schedule following a nine-week suspension during the football season.

### GENERAL SCIENCE

## National Academy Began as Social Club

► AN INFORMAL SOCIAL CLUB was the most important factor in founding what is now the major honor society for leading scientists of the nation and the adviser to the Government on all scientific matters by Congressional decree.

Dr. A. Hunter Dupree, visiting assistant professor of history, University of California, Berkeley, told the American Philosophical Society meeting in Philadelphia that his historical inquiries show that an informal group organized as the Scientific Lazzaroni, named after the homeless idlers of Naples, worked for a decade before the Civil War to bring about the national organization which was founded in 1863.

The National Academy of Sciences is generally thought to have begun primarily as a war agency founded by President Lincoln.

Dr. Dupree finds that the group of scientists headed by Alexander Dallas Bache, taking advantage of a temporary legislative opportunity in Congress and overriding the warnings of Joseph Henry, saw the act founding the National Academy through both houses of Congress without exciting either publicity or debate.

The Lazzaroni group had to breast the criticism of those who had been omitted from the original list of scientists honored by membership, and at its organizational meeting in New York it had to fight off objections to an oath of loyalty to the Union.

Science News Letter, November 24, 1956

## Wrist Radio Weighs 2.5 oz.

### All-transistor wrist radio receiver

A broadcast band all-transistor wrist radio has been designed with r-f reflex circuit to provide good selectivity and sensitivity. Three transistors are used which require 4.5 ma total battery current and five button-size mercury cells last up to 100 hours. The receiver features a 2-stage transformer-coupled audio amplifier and a no-whistle regenerative circuit. A high quality hearing aid receiver allows for private listening. Printed circuitry is used throughout. Band coverage

## GENERAL SCIENCE

# Save Cirrhosis Bleeders

**Test made by inserting needle into the spleen to measure blood pressure would save lives by detecting in advance the likelihood of bleeding for patients with cirrhosis of the liver.**

► A POTENTIALLY LIFE-**SAVING** test for patients with cirrhosis of the liver who are in danger of bleeding to death has been devised by Drs. Francis G. Jackson and John L. Happel of the Veterans Administration Hospital and the University of Pittsburgh School of Medicine.

The test, made by inserting a needle into the spleen, would save lives by detecting in advance the likelihood of severe bleeding.

Cirrhosis of the liver is marked by destruction of liver cells and an increase in scar tissue in the liver. It may be associated with heart conditions, inadequate diet in alcoholics, and a number of other conditions, Drs. Jackson and Happel said.

Occasionally in a patient with cirrhosis of the liver, the portal vein, which is the main entrance for the passage of blood to the liver, becomes blocked, they explained.

When this happens, the blood backs up and sometimes causes internal bleeding that, without prompt attention, can prove fatal.

In the test devised by Drs. Jackson and Happel, a hollow needle is inserted between

the lower ribs on the left side of the body until it enters the pulp of the spleen, an organ that serves as a storehouse for blood.

The blood is allowed to seep into the needle and the pressure is measured in a manner similar to the method of recording blood pressure in the customary arm test.

Because much of the blood that flows into the liver vein comes from the spleen, any pressure caused by blood backing up from the blocked vein would be reflected in the spleen.

When evidence shows an excessive pressure of blood, a possible hemorrhage may be prevented by disconnecting the liver vein and connecting it with a nearby vein known as the vena cava.

Since the vena cava is the biggest vein in the body, this surgery may relieve the strain of obstructed blood on vessels in the stomach and esophagus, the tube by which food enters the stomach, and thus remove the danger of hemorrhage.

After testing 55 patients at the Pittsburgh hospital, the two doctors believe the test

provides a reliable index of blood pressure in the vital liver vein and can be used to show when danger of hemorrhage exists.

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## GENERAL SCIENCE

## Federal Research and Development \$2.4 Billion

► THE FEDERAL GOVERNMENT spent \$2.4 billion for scientific research and development during the fiscal year ending last June 30, and will spend 12% more, or \$2.7 billion in this fiscal year, a National Science Foundation report states.

The percentage devoted to basic research in this year is about nine percent, but the proportion is increasing. Of the more than 90% spent for what is termed research and development, about a tenth is for plant and facilities.

Eight agencies spent 99% of the research and development budget: Department of Defense; Atomic Energy Commission; Department of Health, Education, and Welfare; Department of Agriculture; National Advisory Committee for Aeronautics; Department of Interior; Department of Commerce, and the National Science Foundation.

The distribution of fields is physical sciences, including engineering, 87%; life sciences, 11%, and social sciences, two percent.

Research performed in the Government's own laboratories accounted for 47% of the funds, 38% by project organizations and 13% by educational organizations.

Science News Letter, November 24, 1956

## TECHNOLOGY

## X-Rays Explore Metals At Extreme Temperatures

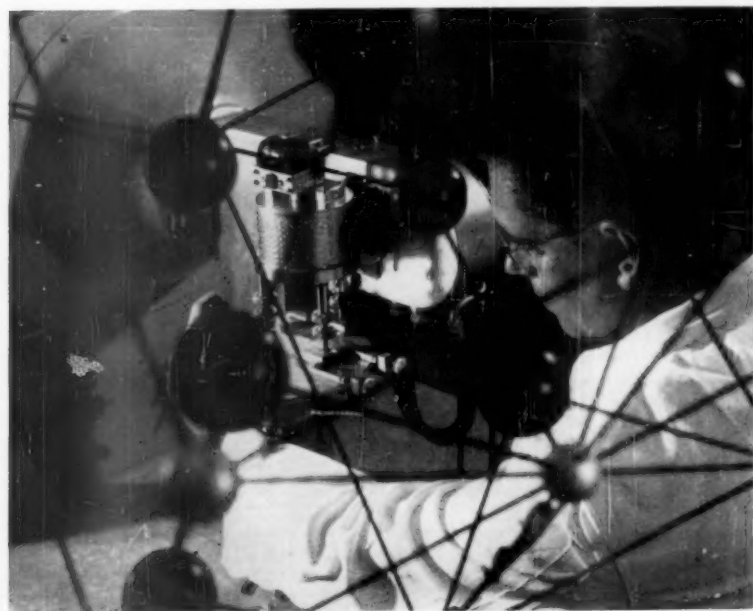
► X-RAY PHOTOGRAPHS of metals have been taken in the Westinghouse Research Laboratories, Pittsburgh, at temperatures as low as 300 degrees below zero Fahrenheit and as high as 3,000 degrees Fahrenheit.

Aimed particularly at understanding the puzzling behavior of iron-aluminum alloys, the powerful crystallographic X-ray machine designed by Dr. Abraham Taylor is able to shorten the exposures necessary for investigations into the properties of the metals. X-ray photographs can be taken in one-fiftieth the usual time.

The short exposure time at the low temperatures allowed the maintenance of accurate temperature control without using excessive amounts of liquid helium to cool the metals.

The X-ray equipment can take snapshots of metals as hot as 3,000 degrees Fahrenheit, according to the characteristics of the metal before it vaporizes or undergoes some chemical change at the elevated temperature. The X-ray machine can also give a beam about a tenth the diameter of a human hair, allowing the study of individual crystals with an exactness not possible with a beam of larger size.

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**PROBING ATOMIC STRUCTURE**—Symbolizing the ability to probe the atomic structure of matter, a powerful crystallographic X-ray machine is seen through an intricate pattern depicting an atomic crystal structure. Designed at the Westinghouse Research Laboratories and used primarily for fundamental research projects, the machine is being operated by R. M. Jones.

# SCIENTIA INTERNATIONAL

## NOVAS DEL MENSE IN INTERLINGUA

➤ **Recercas de Cancere.**—Correlationes statistic inter le fumar de cigarretas e cancro pulmonar e tuberculose esseva establite per Drs. R. Doll e A. B. Hill del britannic Consilio de Recercas Medical. In 1951 le duo doctores distribuava un questionario inter 40.000 medicos del Commonwealth Britannic pro colliger informationes in re lor habitudes fumatori. Cinque annos plus tarde illos trovava que le mortalitate ab cancro pulmonar habeva essite significativamente plus alte inter fumatores de cigarretas que inter fumatores de pipa e non-fumatores. Le mesmo valeva pro tuberculose e etiam pro ulcers gastric e bronchitis chronic.

➤ **Agronomia.**—Un curios methodo pro mesurar le grassia de porcos (e altere bestial) ante lor morte es reportate per scientistas del statunitense Departamento de Agricultura. Illes ha constatate que le duration del somnio que resulta ab le injection de certe dormitivos es indirectemente proportional al contento de grassia in le animales individual.

➤ **Physiologia Cerebral.**—Le theoria del localisation del functiones cerebral debe esser modificata in le lumine de nove observationes per Dr. J. C. Lilly del statunitense Instituto National de Sanitate Mental a Bethesda in Maryland. In experimentos con simias, Dr. Lilly stimulava un multiplicitate de sitios cerebral per medio de minusculissime electrodos que ille habeva permanentemente implantate. Assi ille poteva constatar que il existe nulle area cerebral con functiones exclusive sensori. Omnes combina functiones motori e sensori.

➤ **Agronomia.**—Es reportate ab London que experimentos del Britannic Instituto National pro Recercas de Lacteria ha demonstrate que lacte congelate in saccos de plastic pote esser immaginate durante periodos de usque a deceduo menses sin ulla notabile alteration de gusto.

➤ **Expeditiones.**—Le lupo de Tasmania es un marsupial. Su nomine scientific es *Thylacinus cynocephalus*. Vulgarmente illo es cognoscite como tigre tasmanian. Su apparentia rememora can, kanguru, e tigre. Illo es un predator de oves. In le curso del passate vinti annos nulle specimen de illo ha essite identificate con certitudine. Illo es protegitte per fortia de lege. Nunc un agencia governmental de Tasmania ha organisate un expedition pro determinar si le "tigre tasmanian" es extincte o si illo existe ancora.

➤ **Microscopia.**—Le studio del structura de cellulas vegetal per microscopia electronic o luminar requireva usque nunc le separation preparatori del cellulas individual per medio de acidos que non remaneva sin effecto destructori super le objecto a studiar. Un melior methodo pro le separation de cellulas vegetal se servi del effecto de undas ultrasonice. Dr. F. M. Scott del Universitate California, qui ha disveloppate iste methodo, reporta excellent resultatos effectuate per medio de illo in le studio de cellulas epidermic de cepas.

➤ **Cardiologia.**—Ante 1945 le supervivencia probabile de infantes nascite con cyanosis non excedeva le maximo extreme de vinti annos. Depost 1945 tal infantes pote esser normalisate per interventiones chirurgic. Es reportate le quarte caso de un femina qui esseva assi tractate in su infantia e qui nunc ha devenite matre sin ulla incidentia adverse.

➤ **Cardiologia.**—Relativamente leve exercitios in un atmosfera calide e humide representa un plus grande effortio pro le corde que forte exer-

citios in un atmosfera de moderate grados de temperatura e humiditate. Isto esseva demonstrate per Drs. G. E. Burch e A. Hyman de New Orleans. In le plus frappante de lor experimentos, le duo doctores observava le volumine-minuta del corde in pacientes cardiac e individuos normal (sin ulla exercitio) durante le cambiamento del temperatura ab 23 a 44 C e dei humiditate relative ab 60 a 86 pro cento. Le normales augmentava lor volumine-minuta per inter cinque e vinti litros, le pacientes cardiac per inter cinque e dece litros.

➤ **Insecticidas.**—Le statunitense Administration de Alimentos e Drogas annuncia que in le futuro plus stricte regulationes debe esser applicate al uso del insecticidas de phosphato organic. In studiar le nocivitate de un par de typic insecticidas del genere mentionate, on ha constatate que illos se potencia mutualmente: Le un commenciava afficer un can quando illo se trovava in su alimentos in un concentration de 50 pro million. Pro le altere le correspondente concentration esseva 250 pro million. In combination le duo insecticidas attingeva le mesme effecto in concentrations de 20 e 100 pro million, respectivamente.

➤ **Agronomia.**—In terras ben irrigate, le suppletion de kalium in le forma del fertilisantes standard es paucio satisfactori a causa de su alte solubilitate in aqua. Le problema ha essite superate per un gruppo de scientistas del Universitate California. Illes usa le kalium in le fabrication de vitro e usa le vitro in forma pulverisate como fertilisante.

➤ **Physiologia.**—Reserpina, le ben-cognoscite agente tranquillisante, se ha monstrate capace a supprimer le cyclo mensual de simias feminin durante periodos de usque a 140 dies. Le experimentos in question esseva executate al Universitate Illinois. Le doses requirite es si grande que le uso de reserpina como agente anticonceptional in humanos non es possibile.

➤ **Aviation.**—Le fortia aerice de Australia se ha declarate preste (e honorate) a participar in le transporto del Torcha Olympic ab Athenas a Cairns in Nord-Queensland. Inter Porto Darwin e Cairns on plana transportar le torcha in un avion a reaction a un altitude de circa 15 km. Pro executar iste projecto il va esser necessari isoliar le torcha hermeticamente in un cabina special ubi illo pote esser mantenite vive per un specie de "respiration artificial." A 15 km de altitude nulle torcha-Olympic o altere—pote subsister sin oxygeno supplementari.

➤ **Geologia Petroleari.**—Le detection de nove depositos de petroleo va profiter de un recentemente patentate methodo que examina specimens de aqua sub lumine ultraviolet e es capace a notar le presentia de benzina in un solution de 1 a 1.000.000. Le presentia de benzina in un curso de aqua prova que le aqua ha venite ab le vicinitate de stratos oleofere.

➤ **Agronomia.**—Secundo un guida publicate per le Universitate California, agentes chimic de disfoliation de cotton non solo simplifica le collection sed etiam realita le qualitate del cotton per exporiar le fibras immatur al sol, per reducer le devastation per certe insectos, e per eliminar le immixtura de folios in le producto final. Le agentes disfoliative es applicate per avion o per machineria terrestre. Illos es specialmente efficace si illos es applicate sub alte temperaturas e si le gruppation del plantas es regular e uniforme.

Science News Letter, November 24, 1956

## GENERAL SCIENCE

### Reading Interlingua

➤ **YOU CAN READ** Interlingua if you had no more than one semester of high school French or Spanish or Latin and flunked it. You can read and understand a great deal of it even if you never had contact with any foreign language.

Send this page to an acquaintance abroad and tell him that he can get additional information about Interlingua from Alexander Gode, SCIENCE SERVICE's Interlingua Division, 80 E. 11th St., New York 3, N. Y.

Science News Letter, November 24, 1956

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## PUBLIC HEALTH

# Voluntary Health Groups

► VOLUNTARY HEALTH AGENCIES must not attempt to take over the responsibilities of the protection of the health of the public that do not belong to it, Dr. Gaylord W. Anderson, director of the School of Public Health of the University of Minnesota, warned at the American Philosophical Society meeting in Philadelphia.

Trouble has sometimes developed, he explained, when a voluntary health agency, being concerned usually with a particular disease, has created undue public apprehension or fear, or has stirred up clamor for unproved control programs.

The voluntary agency has sometimes sown the seed of public distrust of health departments that were proceeding with due caution in the adoption of that which was yet to be proved, Dr. Anderson explained.

In many fields of public health a non-official agency is actually more important and carries a major share of the burden of the organized community program designed to prolong efficient human life. Its role, in Dr. Anderson's opinion, is that of education, research, demonstration, promotion and service.

Voluntary health societies now have a combined income of well over a hundred million dollars, Dr. Esmond R. Long, professor emeritus of pathology, The Henry Phipps Institute of the University of Pennsylvania, reported.

The National Tuberculosis Association

was the pioneer organization that attacked successfully by organized effort a health problem slighted by official health departments, he explained.

There are now at least 20 organizations in the United States that devote their efforts to single diseases such as infantile paralysis, or grouped medical entities such as mental disease.

The multiplicity of drives to support the voluntary health organizations is a growing personal and community problem in Dr. Long's opinion.

Most voluntary health organizations are not members of the Community Chest because they believe their programs are national in scope and built around drives that are themselves of educational value.

A few of the societies, Dr. Long said, now have their original goals in sight and these organizations are now considering their future operations.

The man in the street plays an important role in basic scientific research today, Dr. John M. Russell, executive director of the John and Mary R. Markle Foundation, said.

The layman assists or hinders research by giving or failing to give contributions, both voluntary and through taxes. Dr. Russell predicted that scientific directors will supplant money-raising experts and that these scientifically-trained executives will become spokesmen on scientific matters for the voluntary health agencies.

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## TECHNOLOGY

# Basic Petroleum Studies

► TO SUBJECT CHEMICALS to high energy and attempt to create entirely new products from petroleum for use in the atomic age, Shell Development Company's 1,500-man laboratory, Emeryville, Calif., is now using a 3,000,000-electron-volt Van de Graaff accelerator, which is claimed to be the most powerful radiation source used in industry.

It is 50 times as powerful as the largest cobalt-60 radiation source in industrial use. Since the accelerator produces one of the kinds of radiation given off by atomic reactors, it will be used to determine the behavior of petroleum products under operating conditions in atomic power plants.

The electron beam produced will be used as a probe in molecular studies during various processes.

Energy produced by the accelerator will change a liquid chemical to a solid plastic, vulcanize rubber, perhaps even create entirely new products.

Dr. Harold Gershinowitz, president of Shell Development Company, said the machine may lead to new methods of chemical

manufacture because of the type of energy it provides, easier to apply than ultraviolet light and in many cases more selective than heat, the traditional energy source.

The new machine is watched through a closed TV circuit and a system of mirrors. Thick concrete walls separate the actual operation of the accelerator from the scientists conducting the experiments.

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## GENERAL SCIENCE

# Industry Urged to Make Information Believable

► INDUSTRY should make its advertising and other communications to the public more believable, Dan J. Forrestal, Monsanto Chemical Company public relations manager, urged the Synthetic Organic Chemical Manufacturers Association meeting in New York.

"Tell the plain, beautiful, low-pressure truth," he recommended.

Science News Letter, November 24, 1956



## GERMANY'S RADIO TELESCOPE

—To receive radio waves from space emitted by neutral hydrogen atoms at a wavelength of 21 centimeters, the Germans have built this radio telescope on Mount Stockert. Driven by several servomotors, the antenna was set on top of a four-story building with the technical guidance of Telefunken.

## MARINE BIOLOGY

## Coelacanth Discoverer Finds Impaled Spear

► THE DISCOVERER of the coelacanth, the living "fossil" fish, has found a large marlin's spear, two feet long, embedded 13 inches in a floating bale of rubber.

Dr. J. L. B. Smith of Rhodes University, Grahamstown, Union of South Africa, reports in *Nature* (Nov. 10) on a black marlin that "paid dearly for its pugnacity." The 400-pound fish, moving at great speed, attacked one of the rubber bales still floating in East African seas, debris from ships torpedoed during World War II.

Shark's teeth gave Dr. Smith a clue to events.

Hampered by the heavy bale impaled on its spear, the 11-foot marlin could neither withdraw the spear nor break it off. Its struggles attracted sharks, and they rapidly tore it to pieces, becoming blood-crazed in the process.

"In the melee," Dr. Smith concludes, "one of them must have seized the bale of rubber and it was doubtless this that provided the extra force needed to fracture the stout spear."

The bale was then light enough to float. If other similar marine accidents have occurred, they were sunk from human sight. The weight of the severed marlin head, left by the feasting sharks, would cause the pierced rubber bale to sink.

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## MEDICINE

# Stomach Cancer Link

► A LINK between stomach cancer and exposure to iron dust in work in metal industries was reported by Drs. Morton L. Levin and Paul R. Gerhardt and Arthur Kraus of the New York State Department of Health, Albany, at the American Public Health Association meeting in Atlantic City.

Polish birth, exposure to grain dust such as farmers encounter, and exposure to inorganic dust with free silica in such work as pick and shovel labor in road construction, each may also be linked with stomach cancer, the scientists reported.

Their findings were made in a study of 56 men with stomach cancer at Roswell Park Memorial Institute in Buffalo, N. Y.

The job histories of each were checked by industrial chemists to list the chemical and physical agents each man had probably been exposed to during his working life. Information on the 56 stomach cancer patients was compared with similar information on 677 other patients in the same hospital.

"Recorded or estimated occupational exposure to iron dust was significantly asso-

ciated with the stomach cancer group," the scientists report.

Of the stomach cancer group, 12.5% had been exposed to iron dust for ten or more years, compared to one percent of the non-stomach cancer patients.

The same difference was seen for exposure to grain dust, usually as a farmer, for five or more years after exposure to iron dust. The scientists believe the relationship more likely is with some other phase of farming than exposure to grain dust.

Of all the stomach cancer patients, 17.9% had been exposed to inorganic dust with free silica while doing pick and shovel work on roads, compared to 7.8% of the non-stomach cancer group.

Polish birth, also significantly associated with stomach cancer, may exert a greater effect if, in addition to being born in Poland, the man works where he is exposed to iron dust.

The findings, the scientists believe, are suggestive enough to warrant further large scale studies.

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## ASTROPHYSICS

# Polarized Nebular Light

► LIGHT ENERGY from the Crab Nebula, the expanding remnants of a supernova that exploded to a million times the sun's brightness nine centuries ago, is almost 100% polarized.

This discovery by Dr. Walter Baade of Mount Wilson and Palomar Observatories, Pasadena, Calif., confirms the suggestion that the light from this source results from streams of electrons moving in a magnetic field, an atom smasher working on a gigantic scale.

In September, Dr. Baade obtained photographs through polaroid with yellow light that showed nearly complete polarization in many areas of the Crab Nebula, which is also a source of radio waves.

These studies were later confirmed by Dr. William A. Baum, also of Mount Wilson and Palomar, and Dr. Fritz Zwicky of California Institute of Technology, which operates the Observatories jointly with the Carnegie Institution of Washington.

Dr. Baade also investigated the polarization in another source of radio waves, the jet in M87. He found three strong condensations in the outer part of the jet are clearly polarized, although effects in the main jet are masked by the strong light from the central region.

There are two possible sources for the electrons that, when accelerated by synchrotron action, may cause the light emission in the Crab Nebula, Dr. Jesse Greenstein of Mount Wilson and Palomar Observa-

tories suggests. One is the spontaneous break-up of sub-atomic mesons produced by nuclear reactions resulting from bombardment by heavy cosmic ray particles. The second is from thermonuclear, or fusion, reactions in colliding gas masses.

The discovery of polarization in the Crab Nebula also initiates speculation concerning the origin of cosmic rays.

The studies are outlined in the annual report of President Lee DuBridge of the California Institute of Technology.

Science News Letter, November 24, 1956

## PUBLIC HEALTH

# TB Infects 1 Per 100 Per Year in Some Places

► TUBERCULOSIS in some parts of the country is infecting people at the rate of one person per 100 population per year, Donald Trauger of the National Tuberculosis Association, New York, has reported.

"These observations have been made with children as subjects," Mr. Trauger pointed out. "In the light of present knowledge, this means that these children face a lifetime of living with an infection that seldom loses its potency."

Although fewer people are dying of TB than in years past, more than 15,000 still die of it each year. In people over 65, one death is reported for every two cases.

Science News Letter, November 24, 1956

## PHYSICS

# Big H-Bomb Stockpile No Strength Guarantee

► THE NATION that has 1,000 hydrogen bombs is not in a stronger position in most strategic situations than the nation with only 200, Prof. P. M. S. Blackett, Nobelist in physics, of Imperial College, London, states in "Atomic Weapons and East-West Relations." (See page 332.)

The lack of advantage of the bigger H-bomb stockpile is due to the H-bomb's destructive power.

The British scientist, who has worked on atomic energy, believes all-out total war between East and West is unlikely since he thinks that a strategic atomic stalemate already exists.

To protect the United Kingdom from H-bomber attacks, more than 99 percent of the invading planes would need to be shot down, he writes. He concludes that this is impossible, based on Second World War experience and American estimates that as few as 20 percent of planes in a Russian atomic attack would be destroyed.

"Troops, guns, tanks, air and land transportation and tactical air power are now more important than atomic bombers or active defense systems against them," Dr. Blackett states.

"With the period of atomic parity approaching, the interests of East and West are coming much closer. Although outlook for disarmament agreement looks black, outlook for actual disarmament looks good."

Science News Letter, November 24, 1956



**TESTING PRESSURE SUIT**—Pilots of the supersonic age wear special clothing to protect themselves against sudden cockpit depressurization. Here John Konrad, chief test pilot, enters the cockpit of a Chance Vought F8U-1 Crusader to try out a new Navy high-altitude pressure suit.



**ACADEMICIANS GATHER**—Discussing recent scientific advances at the autumn meeting of the National Academy of Sciences in Washington are, left to right, Dr. V. K. Zworykin, consultant for Radio Corporation of America, Dr. Hugh L. Dryden, director of the National Advisory Committee for Aeronautics, and Dr. Franklin Roach of the National Bureau of Standards Boulder Laboratories.

#### MEDICINE

## Anti-Ulcer Drug

► AN ANTI-ULCER drug that lets ulcer patients eat what they want was introduced to American doctors at the first annual Clinical Conference on Peptic Ulcer Therapy in New York.

The new drug, trade-named Exul, is already in use in Denmark, Italy and Canada, and is now being made available to U. S. doctors on a prescription basis.

The drug's basic ingredient is a substance called Nupra, discovered over 20 years ago in research on vitamin K.

Nupra is extracted from the liver, brain and adrenals of cattle by certain organic solvents.

Reporting on his use of the drug on human ulcer patients over a two and a half year period, Dr. Ejner Jarlov, dean of medicine at the University of Copenhagen, said he had effective results in 30 out of 47 patients. All of them were able to continue working and had no restrictions put on their diet.

Describing the action of the new drug, Dr. Carl W. Ebeling, chief of the gastroenterology department, University of Maryland Medical School, said it was effective even when there was a high acid content in the stomach.

Dr. Jarlov reported that the drug eliminates ulcer symptoms. He hopes that use

of the drug will help determine the nature of ulcers.

Exul is being made in Denmark and distributed in this country by Yorktown Products Corporation, New York.

Science News Letter, November 24, 1956

#### HEMATOLOGY

## Pituitary Gland Tumor Linked With Blood Group

► TUMORS of the pituitary gland of the kind causing underfunctioning of this important organ are more likely to strike persons belonging to blood group O than persons in other blood groups, Drs. Ernst Mayr, R. Paul Levine and Margaret Mayr of Harvard University and Dr. Louis Diamond of Children's Hospital, Boston, find.

Very few persons with this rare pituitary tumor belonged to blood group A, while the number in group B was about normal or perhaps a little high, compared to the distribution of these blood groups in the general population.

Patients with brain tumors, on the other hand, show about the same distribution of blood groups as the general population, they report in *Science* (Nov. 9).

Science News Letter, November 24, 1956

#### PUBLIC SAFETY

## Change Attitudes to Cut Auto Traffic Toll

► NEWSPAPERS and magazines should print "more interesting and informative stories" on traffic safety, Dr. Herbert J. Stack, director of the Center for Safety Education, New York University, New York, said at the American Public Health Association meeting in Atlantic City.

He praised the press for the support it is giving the traffic safety movement, but urged increased effort both by the press and by radio and television.

Citing a recent report that the driver who operates a car 10,000 miles a year would make about 25,000 errors or violations annually, Dr. Stack said it is "no wonder so many drivers get into trouble."

Commercial driving schools are not as good as the driving courses given in many high schools, he said.

Chiefly needed, however, in Dr. Stack's opinion are ways of changing the attitude of grown-up and youthful drivers. Faulty attitudes and bad personality characteristics are important causes of accidents.

Science News Letter, November 24, 1956

#### PUBLIC HEALTH

## Money Major Problem Starting Dental Plan

► OBTAINING MONEY is the biggest problem in starting prepayment dental plans, Dr. Bissell B. Palmer, president of Group Health Dental Insurance, New York, told the American Public Health Association meeting in Atlantic City.

Prepayment dental plans allow people to pay small monthly premiums for needed dental care, just as they now do for hospital, medical and surgical benefits.

However, dentists interested in setting up such a non-profit plan can find no organization or foundation willing to donate the needed money to start one. The reason is the Government's current attitude on giving money to non-profit organizations.

In the early days of health insurance, foundations were not restricted in this way, but now they stand to lose their tax-exempt status if they make sizable contributions.

Dr. Palmer, who has headed such a prepayment plan in New York for two years, found many other problems in keeping his plan going. One was the big drain already being made on people's money by other types of health and insurance plans. Also the operating expenses of the plan are too big to allow much saving to the public.

Dr. Palmer believes the best way for the dental plan to keep costs down is to team up with some already existing medical, surgical or hospital insurance plan.

Dr. Palmer also said that many management and union groups were enthusiastic about such plans, but expected them to grow slowly because of the many problems.

Science News Letter, November 24, 1956

## PUBLIC HEALTH

## Spray-Dried Milk Causes 19 Food Poisoning Cases

► **SPRAY-DRIED NON FAT MILK** solids reconstituted into milk for school lunches, caused 19 outbreaks of food poisoning in one month this year in Puerto Rico.

Experiments with adult human volunteers who drank some of the milk and had the same symptoms as the children of stomach pain, nausea, vomiting and diarrhea, helped trace the outbreaks to the milk.

The poison produced by the staphylococcus is believed to have been responsible, although the staphylococcus germs themselves were not present in the dried milk in enough quantities to cause trouble.

It is believed the heat to which the milk is subjected during the processing to dry it may kill the germs, reducing their number to a safe level, without destroying the poison they have already produced in the milk.

The studies were made by Dr. Rolando Armijo of the University of Puerto Rico School of Medicine, San Juan, Dr. D. A. Henderson of the Public Health Service's Communicable Disease Center, Atlanta, Ga., Dr. Rafael Timothee of the Department of Health, Puerto Rico, and H. B. Robinson, chief of the milk sanitation section, milk and food program, Public Health Service, Washington, D. C.

Science News Letter, November 24, 1956

## BIOPHYSICS

## Atom Smasher Replaces Knife to Destroy Gland

► **RADIATION SURGERY** of the pituitary, the master gland of the body, has been performed in limited experiments with the high energy atom-smashing beam of the University of California's giant 184-inch cyclotron.

The preliminary treatment of 30 patients, reported to the American Cancer Society meeting in New York, is the beginning of an effort to determine whether atom-smashers can provide an alternative to surgery for the removal of this key gland.

The report was made by Dr. John Lawrence, director of the Donner Laboratory at Berkeley. His colleagues in the work, supported by the Atomic Energy Commission and the Donner Foundation, were Drs. C. A. Tobias, J. L. Born and Roland McCombs.

The removal of the pituitary by surgery has been used recently in women patients with advanced breast cancer. The idea is to stop production of pituitary hormones which stimulate the output of secondary sex hormones associated with some cancers.

The research with the cyclotron followed experiments showing that rat pituitaries could be excised by the 350,000,000-electron-volt proton beam without significant damage to surrounding tissue.

Of the 30 human patients, 26 had advanced breast cancer. Treatment was carried on between June, 1954, and September,

1955. Five patients were alive 13 to 19 months after irradiation.

Extensive destruction of the pituitary was achieved at the higher levels of irradiation. There was a consistent reduction in activity of the thyroid gland and in the output of secondary sex hormones—both results attributable to destruction of the pituitary.

Dr. Lawrence said the main question of the experiments to date, whether pituitaries could be destroyed by this method, has been answered affirmatively.

More patients must be treated and a longer time must elapse before the therapeutic effectiveness of the method can be evaluated. He noted, however, that some benefit was achieved by a small number of patients who showed either an arrest or regression of the cancer process from one to 12 months.

The big cyclotron is not now operating, but is being modified for a new program of research beginning next year.

Science News Letter, November 24, 1956

## MEDICINE

## New Slow-Down Drug Heart Disease Weapon

► **TESTS** on patients with a drug that may lead to a way of stemming heart disease have begun at the National Heart Institute, Dr. Daniel Steinberg of the U. S. Public Health Service reported at the Association of Military Surgeons of the U. S. meeting in Washington.

The drug slows down the body's production of cholesterol, a substance thought to be involved in artery and heart disease.

The body's output of this substance accounts for about two-thirds of the total amount found in the blood. The other third is taken in by eating cholesterol-containing foods.

Past methods of control have centered around dieting, but if the inhibiting drug works, heart patients will be able to eat everything they want, without worrying about the cholesterol found in fatty foods.

The drug, called delta-4-cholestinonone, had been tried before on animals, but in the usual dosage had produced dangerous side effects on the adrenal glands.

By cutting the dosage almost in half, Dr. Steinberg has avoided all the bad side effects of the drug and still retained its powerful action against cholesterol production.

So far all experiments have been done on animals and have dramatically reduced the cholesterol level 20% to 40% over an eight-month period.

Pilot studies are now beginning on several human patients at the Clinical Center of the National Institutes of Health. They will be watched very carefully for any toxic reactions.

Dr. Steinberg believes it will be at least six months before any definite proof of the drug's value can be established. He hopes to find that this drug, or one like it, will control the blood's cholesterol level.

Science News Letter, November 24, 1956

# IN SCIENCE

## MEDICINE

## Long-Lasting Drug Cuts Arthritis Injections

► **GOOD RESULTS** with a long-acting form of ACTH for patients with rheumatoid arthritis and other collagen diseases were reported by Drs. Harry E. Banghart and Richard K. D. Watanabe of Philadelphia at the Southern Medical Association meeting in Washington.

The long-lasting action of the drug eliminates the need for patients to have injections every six hours or even twice a day. The preparation does not have to be given more often than once in 24 hours, and four patients managed with one dose once a week. Two patients managed on one dose every two days.

The new preparation combines ACTH, the famous anti-arthritis pituitary hormone, with zinc hydroxide. It is easier to give, and patients can even give it to themselves.

Of 22 patients with rheumatoid arthritis that had not been helped by cortisone, hydrocortisone, gold salts or other treatment, 18 were helped by the ACTH-zinc hydroxide preparation. Seven of eight patients with lupus erythematosus, an ailment with fever, skin inflammation and other symptoms, were helped by the new preparation, as were some other patients with skin and connective tissue ailments.

Science News Letter, November 24, 1956

## SURGERY

## Steel Hinge Repairs Damaged Finger Joints

► **FOR BADLY DAMAGED FINGER JOINTS**, there is now a stainless steel hinge that works without pain and improves the appearance of the injured hand.

Good results with it in ten cases were reported by Lt. Col. Earl W. Brannon of the U. S. Air Force Hospital, Lackland Air Force Base, San Antonio, at the Association of Military Surgeons of the U. S. meeting in Washington.

"In the large military hospitals," Col. Brannon stated, "we see a significant number of damaged finger joints resulting in permanent disability."

None of the attempts heretofore to correct this disability has been successful," he said.

The artificial joint consists of two parts joined by a simple hinge joint that is locked by a half-threaded screw and nut. Each part has a stem by which it is inserted into the finger bone. The device is designed to prevent the unwanted rotation and instability that are common faults of other types of finger joint replacements.

Science News Letter, November 24, 1956



# THE FIELDS

## MEDICINE

### Fights Cold by Making Human Body Drier

► A NEW COLD TREATMENT has shown that a person can lose one to two pints of water from his body overnight if the weather is cold and dry. Dr. Guy T. Vise of Meridian, Miss., reported to the Southern Medical Association meeting in Washington.

By keeping accurate records of body weight from day to day, Dr. Vise found that very noticeable losses took place during cold, dry weather.

Dr. Vise reported on a new dehydration method he had used successfully to treat the common cold. In 90% of the cases he obtained excellent results by restricting fluid intake and using hot sweat packs for a two-hour period. The other 10% failed to respond to the dehydration and one big reason, he believes, was the high humidity on the day of treatment.

Science News Letter, November 24, 1956

## MEDICINE

### Relate Smoking to Lung Cancer and Tuberculosis

► A STATISTICAL RELATION between smoking and both lung cancer and tuberculosis is found in two studies reported in the *British Medical Journal* (Nov. 10).

The lung cancer findings are a second report by Drs. Richard Doll and A. Bradford Hill of the Medical Research Council. Five years ago they sent a simple questionnaire on smoking habits to all doctors in the United Kingdom.

Today they report that, among these more than 40,000 men and women, there has been "a marked and steady increase in the death rate from lung cancer as the amount smoked increases."

The mortality has been "substantially and significantly greater in cigarette smokers than in pipe smokers."

Among those who reported five years ago they had given up smoking sometime within the previous ten years or for more than ten years, there was a progressive and significant reduction in mortality with the increase in the length of time over which smoking had been abandoned.

The lung cancer death rate among those who had given up smoking ten years or more before 1951 was about a third that among those still smoking in 1951.

"Three other causes of death show a steady increase in mortality from non-smokers to heavy smokers," Drs. Doll and Hill report. These are chronic bronchitis, stomach ulcer and tuberculosis of the lungs.

Smoking may be "an important cause" of the breakdown of healed or quiescent tuberculosis in adults and may account for a considerable part of the excess of TB deaths of men over women in middle and old age," suggests Dr. C. R. Lowe of the University of Birmingham.

His study was made of smoking habits of patients in TB sanatoriums and clinics and of patients who came to the hospital with minor accidents or for operations other than for lung cancer or TB.

When the two groups were compared, there were very many fewer non-smokers and light smokers and very many more moderate and heavy smokers among the TB patients than among the others. This was true for both sexes at all ages over 30.

Science News Letter, November 24, 1956

## SURGERY

### Plastic Lenses Give Best Eye Protection

► PLASTIC LENSES give the best protection to the eye against small splinters traveling at high speed. Dr. H. W. Rose and G. M. Stewart found in studies at Randolph Air Force Base School of Aviation Medicine, Texas.

The small splinters are the kind involved in most of the cases seen in which a foreign body penetrates the eye, the scientists pointed out in their report to the Association of Military Surgeons of the U. S. meeting in Washington.

They used a helium gun to fire steel balls and splinters at unhardened, hardened and laminated glass lenses and plastic lenses to determine how these would keep the missiles from penetrating the eye.

Hardened glass, such as used by the Armed Forces and industry for protective glasses, is not broken by steel balls about 18 millimeters, or about three-quarters of an inch, in diameter at a velocity of 17 feet per second.

With the small splinters, however, hardened glass is broken and is inferior to unhardened glass. It then no longer protects but is a hazard because of secondary missiles.

Science News Letter, November 24, 1956

## NUTRITION

### Can Take Calories Out of Peanuts

► THE 84-CALORIE 'CONTENT' of a handful of peanuts, about 15 to 17 nuts, can be cut to about 17 calories. It is done by a solvent bath process, developed by the U. S. Department of Agriculture, which removes the calorie-full oil without changing the appearance or destroying the protein content of the peanuts.

The de-oiled peanuts are a little lighter in color and taste milder and sweeter.

They will not be in stores until cost of processing on a commercial scale and other factors have been determined.

Science News Letter, November 24, 1956

## GENERAL SCIENCE

### Bird Hunting Stamp Shows American Ducks

#### See Front Cover

► THE DESIGN for the 1956-57 Migratory Bird Hunting Stamp is shown in the photograph on the cover of this week's *SCIENCE NEWS LETTER*.

Featuring a pair of American Mergansers flying low over fog-bound water, it was drawn by Edward J. Bierly, of Arlington, Va. The stamp is the 23rd to be issued in the Federal duck stamp series.

The design selected for each year's duck stamp is chosen by a judging committee of waterfowl authorities from among entries submitted by artists from the entire country.

A new stamp, issued each year by the Post Office Department, goes on sale July 1 and expires the following June 30. It sells for \$2.00 and is a required possession for any hunter more than 16 years old. More than 2,000,000 stamps are bought annually.

Science News Letter, November 24, 1956

## MEDICINE

### Quick Pain Relief Using Dipipanone

► SWIFT RELIEF of pain with few side effects can be obtained with a new drug, dipipanone, three physicians report in the current *British Medical Journal* (Nov. 10).

Chemically, the drug is related to methadone, one of the relatively new pain relievers.

When injected under the skin, dipipanone started to relieve pain within 10 minutes and its effect reached its maximum in 20 minutes. Pain was then relieved for about five to six hours.

The drug was given to 100 patients suffering from medical conditions such as pleurisy, coronary thrombosis, cancer, ulcers, sciatica and gallbladder attacks.

It was also given to 100 women after gynecological operations. For them it was considered more effective than any other pain-relievers, including morphine in one-sixth grain dosage. The drug gave complete relief of pain in 95 out of the 100 women after operation and in 67 of the 100 medical patients, with moderate relief in another 27 of these.

Although no withdrawal symptoms were seen after up to 80 effective pain-relieving doses, no conclusion can be drawn about the possibility of addiction to the drug, because in most of the cases the pain was short-lived and did not require prolonged use of the drug.

Doctors reporting the new drug are R. O. Gillhespy and E. Cope of the Dudley Road Hospital, Birmingham, and P. O. Jones of the Wellcome Foundation, Ltd. The drug has been trade named Pipadone by its manufacturer, Burroughs Wellcome and Co.

Science News Letter, November 24, 1956

## ASTRONOMY

# See Winter Constellations

December brings beginning of winter in the Northern Hemisphere and also the year's fourth and last eclipse, a partial one of the sun visible over nearly all of Asia.

By JAMES STOKLEY

► DECEMBER brings the beginning of winter in the Northern Hemisphere, and of summer in the Southern Hemisphere.

This event occurs on the afternoon of Friday, Dec. 21, at the winter solstice, the time that the sun, having been moving southward since the beginning of summer last June 21, reaches the end of its journey. After that it will be moving northward once more, but not for a month or two will our weather begin to warm again.

The appearance of the evening sky also reflects the beginning of winter, for the constellations characteristic of that season have begun to appear.

These are on view mainly in the east and southeast, and the most conspicuous is Orion, the warrior, a group easily recog-

nized because of the three stars in a row that form his belt. A little higher, to the left, is Betelgeuse, in one shoulder, while Rigel, to the right, is in one of his legs.

All these stars, and others, are shown on the accompanying maps, which give the appearance of the skies at about 10:00 p.m., your own kind of standard time, at the first of December; 9:00 p.m. at the middle of the month and 8:00 p.m. at the close.

Above Orion is Taurus, the bull, with brilliant Aldebaran, which is red in color. And below is Canis Major, the great dog, with Sirius, the dog star. A little higher, and farther to the left, is the lesser dog, Canis Minor, with the star called Procyon.

Above this group we find Gemini, the twins, with Castor and Pollux.

## Sirius is Brightest Star

Sirius, of minus 1.5 magnitude on the scale of brightness used by the astronomer, is the brightest star to be seen in the nighttime sky. It is even more brilliant than the only planet now seen throughout the evenings, which is Mars, over in the southwest in Pisces, the fishes.

Of zero magnitude, Mars is still brighter than most of the stars, although it is fading rapidly as it recedes from the close approach it made last September. In the south about the time the sun is setting, Mars itself sets about midnight.

Another bright star of the December evenings is Capella, in Auriga, the charioteer, high in the northeast, above the twins. And in the northwest, nearer the horizon, Cygnus, the swan, is seen, marked by the star Deneb.

Below, and a little to the right, is Vega, in Lyra, the lyre, a brilliant star now dimmed by reason of its low altitude.

The day before Christmas, Mercury reaches its position farthest east of the sun, and is visible low in the southwest just after sunset, disappearing before it becomes entirely dark.

About midnight another planet, Jupiter, of about the same magnitude as Sirius, rises in the east, and remains on view in the southeast during the rest of the night.

Low in the southeast, just before the sun rises, Venus can be seen.

December 2 brings the year's fourth and last eclipse, although it occurs during nighttime hours here, and is not visible in any part of North or South America. On the night of Nov. 17-18, at the time of full moon, our satellite entered the shadow of the earth, producing a total eclipse of the moon, which was visible in the United States.

Two weeks later, as the moon has moved halfway in its orbit around the earth, it is in the new phase, and this time it comes partly between us and the sun. However, even at best, it is a partial eclipse, for at no place on earth will the moon completely hide the sun.

## Eclipse 80% at Greatest

The greatest eclipse will occur in southwestern Asia, where a little more than 80% of the solar diameter will be covered by the moon's dark disc.

Some part of the solar eclipse will be visible over nearly all of Asia, except the southeastern and northeastern portions, as well as Egypt and most of Europe, where it will happen early in the morning, about the time the sun is rising.

Nearly overhead these evenings stands the constellation of Perseus, the champion. This is the mythological hero who was armed with the head of the Medusa, which was so horrible that it turned to stone anyone who gazed at it.

Thus aided, he killed the sea monster, Cetus, represented by Cetus, the whale, visible to the south, just as it was about to

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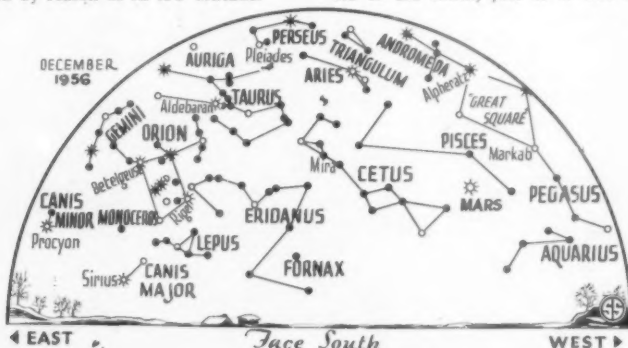
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\* \* \* \* SYMBOLS FOR STARS IN ORDER OF BRIGHTNESS



devour Andromeda, the princess, whose constellation is to the west of Perseus.

In Perseus is the star called Algol, which is an eclipsing variable. Ordinarily of the second magnitude, every 2 days 21 hours it fades to about two-thirds of its ordinary brightness, taking five hours to dim and five hours to return to normal.

An Italian astronomer named Montanari discovered that Algol changed in brightness, as early as 1670, but it remained for an Englishman named Goodricke, in 1872, to find that the variations were regular, and to explain them.

Actually Algol is not one but two separate bodies, one much brighter than the other. They revolve around each other in 2 days, 20 hours and 49 minutes.

During each circuit the dark one comes in front of the bright one and partly eclipses it, just as the moon will eclipse the sun on Dec. 2. However, since the brighter orb is not completely covered, the eclipse is partial, and that is why the diminution is only a third.

About 200 eclipsing binary stars are now known, while a number of others are suspected to be of the same class.

### Celestial Time Table for December

Dec.	EST	
1	5:47 p.m.	Algol at minimum.
2	3:12 a.m.	New moon, partial eclipse of sun visible in Asia and Europe.
7	11:00 a.m.	Moon farthest, distance 251,800 miles.
10	6:51 a.m.	Moon in first quarter.
11	2:41 p.m.	Moon passes Mars.
12	early a.m.	Meteors visible radiating from constellation of Gemini.
16	1:52 a.m.	Algol at minimum.
17	2:06 p.m.	Full moon.
18	10:41 p.m.	Algol at minimum.
19	8:00 a.m.	Moon nearest, distance 224,500 miles.
21	4:00 p.m.	Sun farthest south, winter commences in Northern Hemisphere.
24	7:00 p.m.	Mercury farthest east of sun, visible after sunset low in west about this date.
29	2:17 p.m.	Moon passes Venus.
31	9:13 p.m.	New Moon.

Science News Letter, November 24, 1956

It is estimated that tobacco smoke adds almost 12 tons of contaminants to the air of Los Angeles County every day.

Fur seals on the Pribilof Islands numbered only 125,000 in 1911, compared with 1,750,000 today.

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# Books of the Week

For the editorial information of our readers, books received for review since last week's issue are listed. For convenient purchase of any U. S. book in print, send a remittance to cover retail price (postage will be paid) to Book Department, Science Service, 1719 N. Street, N. W., Washington 6, D. C. Request free publications direct from publisher, not from Science Service.

**THE ANATOMY OF NATURE: How Function Shapes the Form and Design of Animate and Inanimate Structures Throughout the Universe**—Andreas Feininger—*Crown*, 168 p., illus., \$5.95. A beautiful collection of best nature photographs by a *Life* photographer and others.

**ATOMIC ENERGY**—A. Radcliffe and E. C. Robertson—*Philosophical Library*, 142 p., illus., \$4.75. A simply written book about the tiny atom and its tremendous power.

**ATOMIC WEAPONS AND EAST-WEST RELATIONS**—P. M. S. Blackett—*Cambridge University Press*, 107 p., \$2.00. A Nobelist in physics who has worked on atomic energy writes on a most important and timely topic. (See p. 326.)

**CHEMICAL AND MECHANICAL STABILIZATION**—L. D. Hicks and others—*Highway Research Board*, Bulletin 129, 110 p., illus., paper, \$2.25. Discussing the treatment of various kinds of soil for roads, from Iowa loess to the "ball-bearing" sands of Arctic beaches.

**THE CULTURE AND MARKETING OF TEA**—C. R. Harler—*Oxford University Press*, 2d ed., 263 p., \$4.00. Telling of the chemical composition of tea and how it is grown in Asia, India and Indonesia. Also discussing the possibility of growing it in Africa, Australia and the U.S.S.R., where machines for picking the leaves are being tried out.

**THE EARTH WE LIVE ON: The Story of Geological Discovery**—Ruth Moore—*Knopf*, 426 p., illus., \$6.00. A newspaper reporter wrote this

account of discoveries about the earth beneath our feet and the great men who have made the knowledge available to us.

**GLOBES AND SPHERICAL MAPS**—Louis H. Powell—*Science Museum*, Science Bulletin Number 4, 16 p., illus., paper, 50 cents. Describing modern spherical displays that may eventually replace the awkward globe and misleading flat map.

**GREAT ADVENTURES IN SCIENCE**—Helen Wright and Samuel Rapport, Eds.—*Harper*, 338 p., \$3.95. Exciting real-life tales told by well-known scientists and science writers.

**THE GREAT NUTRITION PUZZLE**—Dorothy Callahan and Alma Smith Payne—*Scribner's*, 192 p., illus., \$2.95. How the solution of the problem of our nutrition was gradually pieced together over the years.

**GRIZZLIES IN THEIR BACK YARD**—Beth Day—*Messner*, 224 p., \$3.95. Telling of a couple who lived among these awesome wild creatures in British Columbia.

**HAILSTORMS OF THE UNITED STATES**—Snowden D. Flora—*University of Oklahoma Press*, 201 p., illus., \$3.50. Hail, the author says, is more destructive than tornadoes. A single storm striking a city during business hours can, in a few minutes, cause a loss of \$1,000,000 or more in damage to parked automobiles alone.

**HANDBOOK OF CHEMISTRY: A Reference Volume for All Requiring Ready Access to Chemical and Physical Data Used in Laboratory Work and Manufacturing**—Compiled and Edited by Norbert Adolph Lange assisted by Gordon M. Forker—*Handbook Publishers*, 9th ed., 1969 p., \$8.50. Containing, for the first time, physical properties of the earth and atmosphere, cosmic abundance of elements, occurrence of elements in the human body and other data.

**HOME HEALTH EMERGENCIES: A Guide to Home Nursing and First Aid in Family Health Emergencies**—based on an original manuscript by Granville W. Larimore—*Equitable Life Assurance Society of the United States*, 256 p., illus., paper, single copies free upon request direct to publisher, 393 Seventh Ave., New York 1, N.Y. Useful suggestions for home care of a patient and homemade equipment for the sickroom.

**INTERNATIONAL REVIEW OF CYTOLOGY**—Volume V—G. H. Bourne and J. F. Danielli, Eds.—*Academic*, 570 p., illus., \$11.50. Articles from all branches of cytology to help those interested in cell biology form a unified concept of the field.

**L. J. M. DAGUERRE (1787-1851): The World's First Photographer**—Helmut and Alison Gernsheim—*World Publishing*, 216 p., illus., \$7.50. The story of a revolutionary development and the artist responsible.

**LISTEN AND LEARN FRENCH**—Leon J. Cohen—*Dover*, 110 p., paper, with three 10-inch l.p. records, \$4.95 for the set, extra books \$2.00. Intended especially for travelers.

**MARRIAGE—PAST AND PRESENT: A Debate Between Robert Briffault and Bronislaw Malinowski**, edited with an introduction by M. F. Ashley Montagu—*Porter Sargent*, 90 p., paper \$1.50, cloth \$2.50. First publication in book form of an interesting debate on marriage which took place on the British Broadcasting System about 1930. The debate became so acrimonious that Briffault never finished the series.

**MEDICAL SCIENCES: Volume 1**—J. C. Burgher, J. Coursaget and J. F. Loutit, Eds.—*McGraw-Hill*, Series VII of Progress in Nuclear Energy, 165 p., \$6.00. Discussing the use in medicine of radioactive isotopes and protection against radiation hazards.

**MODELS FOR TEACHING**—Martha F. Meeks—*Visual Instruction Bureau, University of Texas*, 40 p., illus., paper, \$1.00. Suggesting to teachers inexpensive models they can construct and use to make subject content more meaningful.

**NEW HORIZONS U.S.A.: The Guide to Travel in the United States**—Pan American World Airways—*Simon and Schuster*, 510 p., illus., \$1.95. Information for visitors on such matters as what kind of clothing is needed, points of interest, special local customs, local holidays, accommodations, etc.

**PSYCHOLOGY, PSYCHIATRY AND THE PUBLIC INTEREST**—Maurice H. Kriol, Ed.—*University of Minnesota Press*, 217 p., \$4.00. Intended to clarify the relations between two professions with a view to promoting more cordial accord.

**THE REAL BOOK OF ELECTRONICS**—Edward Stoddard—*Garden City Books*, 215 p., illus., \$1.95. Designed to explain the intricacies of radio, television, radar and phonographs to children eight to fourteen.

**A SPACE TRAVELER'S GUIDE TO MARS**—I. M. Levitt—*Holt*, 175 p., illus., \$3.95. It is not a question of whether we can travel to Mars, the author says, but when we are going. This book presents current knowledge of Mars and the history of our observation of this planet, and also discusses the ways by which man may reach Mars and the problems that must be overcome before this can be accomplished.

**THE STORY OF ROCKS**—Dorothy E. Shuttlesworth—*Garden City Books*, 56 p., illustrated with drawings by Su Zan N. Swain, \$2.50. To aid the young rock hound in identifying his "finds" as well as to give him in simple language basic elements of petrology.

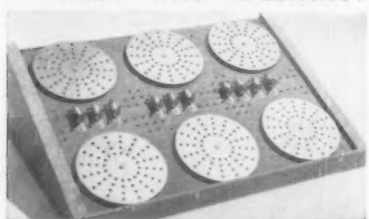
**USING THE CONSULTANT**—Charles H. Dent, Virginia Huftedler, and Martha F. Meeks—*Visual Instruction Bureau, University of Texas*, 8 p., illus., paper, 50 cents. Telling when and why a consultant should be called in and how the best use can be made of his services.

**WALT DISNEY'S AFRICAN LION**—James Algar—*Simon and Schuster*, 75 p., illus., \$10.00. One of Disney's "True-Life Adventures," illustrated with beautiful color photographs of the lion and other beasts of the African wild.

**WALT DISNEY'S LIVING DESERT**—Marcel Aymé and others—*Simon and Schuster*, 74 p., illus., \$10.00. Illustrated by gorgeous color pictures from the Disney films showing wildlife in natural poses.

Science News Letter, November 24, 1956

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THE WHOLE YEAR THROUGH

FOR THE MOST UNUSUAL PERSON  
ON YOUR CHRISTMAS  
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Wouldn't he (or she)  
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each month in 1957?

Twelve  
Surprises  
plus  
another  
we'll add

IN EACH 1957 gift package, there will be several objects of science, and with each object, a museum-style legend card, which will tell at a glance what these THINGS of science are. Included will be the sheets of explanation, that give the interesting details of discovery, of development, of manufacture, and that tell how to perform unusual experiments with the contents of the package.

Since late in 1940, packages like these have been going forward to members of the THINGS of science group. Glance over this list, then decide whether a membership which brings monthly packages on subjects as widely varied as these, isn't just the thing for that most unusual person on your Christmas Gift list.

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Ladestone  
Rayon  
Coins  
Casein  
Rubber Plant  
Spices  
Sweetness  
Steel  
Coal By-Products  
Nylon  
Vinyl Resin Fibers  
Insecticides  
Horology

Vegetable Dyes  
Housing Materials  
Coffee By-Products  
Iron Ore  
Modern Cotton  
Multi-Layer Wood  
Fingerprint  
Mineral Hardness  
KIDSKIN  
Humidity  
Polaroid  
Tea  
Motion Picture  
Highway Safety  
Modern Electronics

Taste  
Food Packaging  
Urea Chemical  
Fungicides  
Sea Shell  
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Licorice  
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Straight Line  
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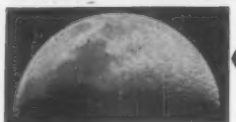
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This is an actual photograph of the moon taken through our Astronomical Telescope by a 17-year-old student.



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70,006-Q	10"	1 1/2"	29.45 postpaid
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## MEDICINE

## Reports Citrus Chemicals Help in Common Colds

► CHEMICALS from citrus fruit peels, called flavonoids, combined with vitamin C, also found in citrus fruits, brought "definite, objective relief" from both mild and severe colds in various stages, Dr. W. L. Macon Jr. of St. Louis reports in the *Journal of Industrial Medicine and Surgery* (Nov.).

His favorable findings came in a controlled study conducted among employees at McDonnell Aircraft Corporation, St. Louis.

Science News Letter, November 24, 1956

## Do You Know?

Ill health is the most frequent motive for suicide.

Untanned *sharkskin*, called shagreen, has millions of tiny projections known as "denticles," and for centuries shagreen was used by ships' carpenters instead of sandpaper.

Railroads have been constructed on floating ice.

A trumpeter swan breeding pair usually need about a square mile of land and water for seclusion during the nesting season.

Huge radio-equipped balloons released from Japan by U. S. Navy personnel are revealing important facts about the jet stream, a swift-moving river of air high in the earth's atmosphere.

## RAPID CALCULATIONS

by A. H. Russell

### CAN YOU

- Name the day of the week on which May 1st, 1485, fell . . .
- Give the cube root of 42508549 . . .
- Tell how long it takes for money to double itself at 5% compounded annually . . .

### IN 5 SECONDS?

- or, Multiply 56837 by 2467
- Divide 385623874169 by 89 . . .

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## MARINE BIOLOGY

## Gold Pigment Controls Vision in Deep Sea Fish

► FISH that live in the ocean depths have a different kind of pigment to control vision than do fish at the surface or animals on land. Instead of visual purple, they have a visual gold.

The pigment is reported in *Nature* (Nov. 10) by Drs. E. J. Denton and F. J. Warren of the Marine Biological Laboratory, Plymouth, England, who found it in four species of deep-sea fish caught in the Bay of Biscay.

These species are often caught at a depth of about 500 yards, a depth close to that at which the human eye can no longer see the light of day.

The golden pigments are admirably suited, the scientists comment, to make the best use of the fraction of daylight that penetrates deep into the ocean. These waters are most transparent to blue light, and near the ocean bottom this is the only light penetrating.

Scientists previously had found, in addition to the familiar visual purple, a rose pigment in coastal marine fish. Thus the new golden pigment which has been named chrysopsin, is the third known to scientists.

Science News Letter, November 24, 1956

## Questions

ASTROPHYSICS—In what state is light from the Crab Nebula? p. 326.

□ □ □

GENERAL SCIENCE—How much money did the Government spend for research and development during the fiscal year 1956? p. 323.

□ □ □

HEMATOLOGY—Blood groups are linked with what gland disorder? p. 327.

□ □ □

MEDICINE—What is the new cold treatment tested by a southern doctor? p. 329.

□ □ □

PUBLIC HEALTH—How many persons are dying of tuberculosis each year? p. 326.

□ □ □

SURGERY—What kind of lenses give the best protection to the eye against small splinters? p. 329.

□ □ □

Photographs—Cover, Edward J. Bierly—Fish and Wildlife Service; p. 323, Westinghouse Research Laboratories; p. 325, Telefunken; p. 326, U. S. Navy; p. 327, Fremont Davis; p. 336, Bakelite Company.

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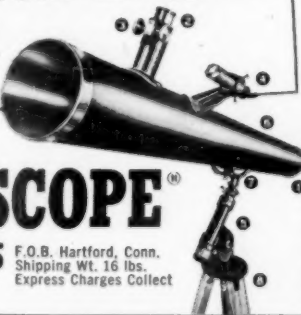
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In Charge of Astronomical Observatory, Sacramento Junior College, Calif.

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For sources of more information on new things described, send a self-addressed stamped envelope to SCIENCE SERVICE, 1719 N St., N.W., Washington 6, D. C., and ask for Gadget Bulletin 858. To receive this Gadget Bulletin without special request each week, remit \$1.50 for one year's subscription.

✿ **TRAVEL CASE** for men has a wide-mouthed spring closure for safekeeping of shaving gear and men's toiletries. Cut square and measuring 10 inches, the inside of the kit is lined with a plastic film that resists water, oils, grease and chemicals. It is available in blue, brown or wine.

Science News Letter, November 24, 1956

✿ **HOME INTERCOM-RADIO** system can service five stations within the house. It permits simultaneous radio and inter-room communication at any outlet. The master set can be used additionally as an electric or alarm clock. Sounds of baby's playing or breathing, or music, can be piped throughout the home.

Science News Letter, November 24, 1956

✿ **POLYETHYLENE PLASTIC TAPE** helps stop pipe corrosion. Permitting little or no moisture absorption or penetration, the tape is said to resist electrolytic attack and microbiological deterioration. Heat is not needed to apply the plastic tape; a non-corrosive adhesive compound is bonded to one side for ready use. It is available in widths from one to six inches.

Science News Letter, November 24, 1956

✿ **OUTDOOR BOWLING** is now possible with a portable game set shown in the photograph. Almost any long, level stretch



can be a site for the bowling alley. The pins are molded of a lightweight polyethylene plastic and stand 15 inches high. The plastic ball weighs two pounds. A portable backstop net and triangular pin-spotting sheet are included in the set. The total weight is 20 pounds.

Science News Letter, November 24, 1956

✿ **LABORATORY SOLVENT** offers added safety for scientific workers. The solvent,

a non-flammable trichloroethane with solvent properties similar to those of carbon tetrachloride, has a low toxicity. It has a pleasant odor and boils at a slightly lower temperature than carbon tetrachloride.

Science News Letter, November 24, 1956

✿ **PLASTIC POLISHER-CLEANER** for improving pilot vision removes fine scratches and haze from airplane plastic windshields. The powder is described as being anti-static, non-flammable and non-toxic. It is effective on acrylics, polystyrene, acetate, and both rigid and flexible vinyls.

Science News Letter, November 24, 1956

✿ **ANTI-STATIC SWEEPER**, using the ionizer polonium, cleans surfaces of dust, lint or any substance held to the surface by dry static attraction. Available in various sizes, the sweeper can be used by photographers, Hi-Fi fans and photo-engravers.

Science News Letter, November 24, 1956

✿ **WALL STUD FINDER** locates the stud by finding hidden nails securing it to the baseboard. It makes picture hanging easier for the home-owner. The two-inch device locates metal objects by use of a magnet imbedded in a plastic case. It can also be used to pick up pins and needles and locate nails in tires.

Science News Letter, November 24, 1956



## Nature Ramblings



### By HORACE LOFTIN

► **BRIGHT SCARLETS**, greens and yellows are found commonly in the coloring of birds, fishes and reptiles. When compared to these brilliant colors, the dress of most mammals may seem somber indeed.

Mammal color is largely determined by pigments found in the hairy coats. The fur usually runs to blacks, whites, grays, reddish browns and mixtures of these. But although mammals may lack in brilliance, they make up for brightness by variety and pattern of subdued colors.

Take, for example; the familiar red fox, *Vulpes fulva*. This handsome animal has his upper parts a reddish yellow, with black-tipped hairs streaking the middle of his back. His rump is grizzled with reddish hairs mingled with white and black-tipped ones. His bushy reddish tail is mixed with black, and there is a black spot at the base and a white spot at the tip of the tail.

### Colorful Mammals



The under parts, cheek and inner side of Renard's ears are white, while the back of his ears and his feet are black.

The above description fits the "average" red fox, but foxes range far around that "average" color. The rare and expensive "silver fox" fur represents nothing more

than the pelt of a red fox in its "silver" color phase. In this dress, the fox has a sleek blackish coat frosted in white.

Another color phase of the red fox is seen in the "cross fox," so named for bands of lighter fur that cross the pelt. The chief variation here is yellow and gray mixed with the normal pelt color. Cross foxes stand somewhat intermediate between normal red and silver foxes in pigment.

All these color phases may appear in the same litter with normal fox pups, proving they are all in the same species.

Arctic foxes show striking color changes within the same individual. With the approach of snow, these foxes don an immaculate white coat, which they keep till spring. As the days lengthen, the white coat is abandoned for one of drab gray.

This variation is thought to represent presence of entirely new hair, not pigment changes in old hairs.

Science News Letter, November 24, 1956